

OPTICAL COMMUNICATION BETWEEN FACE-TO-FACE SEMICONDUCTOR CHIPS

ABSTRACT

One embodiment of the present invention provides a system that communicates between a first semiconductor die and a second semiconductor die through optical signaling. During operation, the system converts an electrical signal into an optical signal using an electrical-to-optical transducer located on a face of the first semiconductor die, wherein the first semiconductor die and the second semiconductor die are oriented face-to-face so that the optical signal generated on the first semiconductor die shines on the second semiconductor die. Upon receiving the optical signal on a face of the second semiconductor die, the system converts the optical signal into a corresponding electrical signal using an optical-to-electrical transducer located on the face of the second semiconductor die.